All the "cures" were started with thorough bathing and cleaning with soap, change of underwear, bedding, and possibly dry cleaning of clothes. Each patient received an instruction sheet and was told to report.

COMMENT

It is noteworthy that a second "cure" was unnecessary with the benzoyl benzoate method. I shall not count one case where, without my knowledge, the course was repeated three days after the finish of the first course. Even the experienced dermatologist would be unable to judge the final result after three to four days. For example, it is a known fact that the chronic scabies papule, with reactive inflammation in the skin, often takes weeks to involute, particularly on the shaft of the penis.

Discussion.—In interpreting various reports it is interesting to notice the good results with the Danish cure, reported by Greenwood and Reilly. However, accurate data are not supplied in the statistics, and no mention made of individual cases.

The sodium thiosulphate plus hydrochloric acid method is undoubtedly a great improvement over the last. Its enthusiastic reports should not be doubted. Disadvantages, amongst which the observed redness, or dermatitis venenata, of the skin and grave itching are the most obvious, justifies a search for further perfection.

The reported series of ninety cases treated with benzoyl benzoate-sapo mollis-alcohol, compared with an approximately equal number of aforementioned, justifies optimistic conclusions.

CONCLUSIONS

1. The benzoyl benzoate cure was the most effective in these two series.
2. It is simple and cheap.
3. Secondary effects, like dermatitis venenata, were absent, itching negligible.
4. Impetinginized scabies lesions, which responded strikingly with the benzoyl benzoate cure, were protracted or aggravated with sodium thiosulphate plus hydrochloric acid.
5. The safety margin of benzoyl benzoate "cure" has a great advantage over that of the sodium thiosulphate cure, particularly where "misunderstandings" have occurred.
6. In a few cases, the "one application" method with benzoyl benzoate has been promising, and is being tried out.

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REFERENCES

1. Ehlers, E.: Am Fnat Behandlingen Med Unguentum Hepatis Sullphuris, Ugesk. f. lager, 83:480 (April 7), 1921.
2. Arch. Dermat. and Syph., 35:602 (April), 1937.
3. Raveant and Mahien, M.: L'hyposulphite de Soude dans le Traitement de la Gale et de Diverses Affections Cutanées Bull. Soc. franc. de dermat. et syph., 41:135 (Jan.), 1934.
4. Lancet, 1:21 (Jan. 2), 1937.
5. Arch. Dermat. and Syph., 34:218-219 (Aug.), 1936.

DISCUSSION

HENRY J. TEMPLETON, M. D. (3115 Webster Street, Oakland).—The old orthodox treatment of scabies by means of sulphur ointment is open to several objections. As pointed out by Kingston,[1] it occasionally fails to kill the acari even after proper application. I have noted this same drawback in a number of cases. Next, it produces a fairly high incidence of sulphur dermatitis, and, lastly, it is "messy" and time-consuming.

The method described by the author would seem to materially simplify the treatment of scabies. I have used it in about a dozen cases in my private practice, and with considerable satisfaction; but many more cases must be treated and results appraised before we finally can evaluate it.

C. RUSSELL ANDERSON, M. D. (1930 Wilshire Boulevard, Los Angeles).—Any improvement in the treatment of scabies is welcome, and I am sure that every physician will appreciate the points brought out in Doctor Ingels' study.

He mentions the tenacity of sulphur dermatitis, whose duration at times varies from four to six weeks in spite of all types of soothing applications. Pyrethrum ointment has been used with success by some physicians. Although sulphur dermatitis is then avoided, many dermatologists hesitate to use it for fear of producing a pyrethrum sensitivity, which would be disastrous in view of the widespread use of pyrethrum in insecticides.

The short period of treatment with the benzyl benzoate mixture, the simplicity of application, the uniformly good results, and the relative freedom from treatment dermatitis, merit the attention of every physician who has occasion to prescribe for scabies.

HARRY E. ALDERSON, M. D. (490 Post Street, San Francisco).—I am glad that Doctor Ingels mentioned the difficulty that one experiences in obtaining complete coöperation on the part of the patient and family. Such a little oversight as that of failing to clean the toilet seats thoroughly may account of recurrences. I believe that the spread of scabies in schools is often due to contamination of toilet seats. The tendency for sulphur dermatitis to develop promptly in some patients increases our difficulties. Many patients, before consulting a dermatologist, have already tried various neighborhood and drug-store remedies containing sulphur, and, of course, promptly feel the bad effects of further sulphur medication.

The sodium thiosulphate and acid combination is quite useful, but we see too many recurrences, or, shall we say, failures to achieve a complete cure by this method.

The benzoyl benzoate treatment has proved its usefulness, but even that method is not 100 per cent effective. In some countries plain balsam of Peru has been used, having the patients anoint completely the entire body, and good results thereby are obtained; but frequently renal irritation has developed. The benzoyl benzoate, a derivative of balsam of Peru, might be expected to produce toxic effects, but so far I have not observed any. I believe the method is quite valuable, and shall continue using it in cases where good coöperation can be obtained, but I expect also to have to use sulphur in some cases.

[1] Kingston, Frank E.: An Outbreak of Scabies in a Mental Hospital, The Lancet, Vol. 11, No. 15, p. 815, (Oct. 12), 1935.

ROENTGEN DIAGNOSIS OF DISEASES OF THE ILEOCECAL REGION OF THE GASTRO-INTESTINAL TRACT*

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DISCUSSION *by Charles M. Richards, M. D., San Jose; Henry Snure, M. D., Los Angeles.*

PART II†

NONSPECIFIC ULCERATIVE GRANULOMAS (REGIONAL ILEITIS)

SINCE the description of regional ileitis in 1932 there has been an active interest in the subject of benign inflammatory granulomas. In a previous communication[3] the writer presented a detailed study of the clinical, pathological, and roentgen

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findings in a series of fifty cases, and the reader is referred thereto for a comprehensive discussion of the subject. Pathologically, the disease is characterized by a cicatrizing inflammatory process, which produces extensive stenosis of the intestinal lumen. There is a definite predilection for involvement of the terminal ileum in a large majority of the cases. However, the disease may involve other portions of the gastro-intestinal tract. A similar pathological process has been noted in the jejunum and in the proximal portions of the ileum. In some cases there is extension of the granuloma from the terminal ileum into the colon. In other instances the granuloma of the ileum is associated with a nonspecific ulcerative colitis. External and internal abdominal fistulae are often present. The disease is most often seen in young adults. Abdominal cramps, diarrhea, and loss of weight are the most frequent symptoms. At times the symptoms are minimal, and consist of mild abdominal discomfort. On physical examination, a palpable mass is often found, usually in the right lower quadrant of the abdomen. On all suspected cases, special study of the small intestine is advisable. A satisfactory procedure is to take films at two, four, six, and eight hours after the ingestion of the barium meal. The essential roentgen finding is the demonstration of a narrow and stenotic segment of intestine. The treatment of these inflammatory granulomas is surgical, and resection of the diseased intestine is indicated. This procedure usually results in a cure.

SECONDARY INFLAMMATORY GRANULOMAS

Inflammatory granulomas secondary to appendicitis, typhlitis, and diverticulitis have been described in the literature. Donchess and Warren [4] reported a granuloma involving the cecum and ascending colon, which apparently developed from appendicitis. They mentioned twenty-four cases of granulomas involving the cecum and colon. In seven of these the ileum was also involved. In these secondary granulomas, there is usually thickening and induration of the cecum, pericecal adhesions, and enlargement of the regional lymph nodes, all of which contribute to the palpable mass which is often present clinically. There is usually no mucosal ulceration, a point which differentiates them from a primary nonspecific granuloma, such as regional ileitis. Clinically, these patients complain of recurrent abdominal pain or the presence of a mass in the abdomen. The roentgen examination reveals cecal irregularity, with narrowing of the lumen. At times a semilunar filling defect in the cecum is noted, resulting from pressure of the adjacent inflammatory mass.

PERI-INTESTINAL GRANULOMAS

Granulomas of the intestine which develop secondary to slowly perforating lesions of the bowel are usually caused by a foreign body, such as a fishbone or toothpick. These inflammatory masses are peri-intestinal, and do not encroach on the intestinal lumen. There is no mucosal ulceration. Clinically, these cases present themselves with a palpable mass in the abdomen. Because of the absence of intramural involvement of the bowel in this type of granuloma, the barium meal and enema are usually negative. Occasionally, there is persistent spasm of the intestine adjacent to the lesion. At operation these granulomas resemble malignancy. On examination, however, they are found to be benign inflammatory masses. The etiologic foreign body is often found imbedded in the granuloma.

LYMPHOBLASTOMA

Hodgkin's disease, lymphosarcoma, and follicular lymphoblastoma are all considered in the group of lymphoblastoma. These tumors may involve various parts of the gastro-intestinal tract. They are most commonly found in the ileocecal region. Grossly, the lesions appear as annular, polypoid, or subserous growths. In lymphosarcoma there is a rather characteristic tendency to aneurysmal dilatation of the lumen of the involved segment of intestine. Stenosis of the bowel, when present, is usually due to pressure from metastatic glands in the mesentery. The gastro-intestinal symptoms are not charcteristic. When the growth is of the polypoid type, a mass may be palpable in the abdomen. The clinical picture is often that of acute or chronic intestinal obstruction. There does not appear to be any characteristic roentgen appearance. In some cases with a polypoid growth there is a filling defect in the involved area. In others, where the disease is infiltrative, there are irregular areas of constriction and dilatation in the intestine. The presence of a localized dilatation of the intestine, associated with a palpable mass, is suggestive of lymphosarcoma. When the cecum is involved, thickening and distortion of the mucosal markings may be noted. Coincident lesions of the stomach and intestine suggest the possibility of lymphoblastoma. In a series of 107 cases of gastro-intestinal lymphoblastoma, associated lesions of the stomach and intestine were found in 28 per cent. In many cases of suspected lymphoblastoma, the diagnosis is facilitated by the presence of generalized glandular or splenic enlargement. In others the presence of an associated mediastinal tumor makes the diagnosis evident. At times the diagnosis may rest on the biopsy of a palpable lymph node.

APPENDICEAL INFECTIONS

The diagnosis of a chronic appendicitis is occasionally offered by the roentgenologist. Fixation of the appendix, associated with definite localized tenderness of the visualized appendix, constitute the most valuable signs. In addition, kinking of the appendix, irregular narrowing of the lumen, segmentation of the barium shadow, and stasis of barium in this organ, offer additional evidence of a diseased appendix.

We have observed a moderate number of cases of calcified appendiceal fecaliths. These were seen on the flat plate of the abdomen, taken on suspected cases. They are noted as small calcific shadows present in the right lower quadrant of the abdomen. They measure up to one centimeter in diameter. Occasionally they are almond-shaped, and at times a laminated structure can be demonstrated.

In cases of appendiceal abscess, there is usually a tender palpable mass present in the right lower quadrant of the abdomen. This is demonstrated on the roentgen examination by the presence of a smooth semilunar, pressure defect on the medial aspect of the cecum. It is occasionally associated with displacement of the terminal ileum by the adjacent mass.

INTUSSUSCEPTION

Intussusception is occasionally present in the proximal portion of the colon, and may be of either the ileocecal or cecocolic type. Approximately one-third of the cases are associated with a neoplasm, which is more often benign than malignant. Cases of acute intussusception are usually not referred for roentgen examination, whereas chronic intussusception in adults is occasionally observed. Very often there is a palpable mass present in the abdomen, and blood may be noted in the stools. The roentgen aspects of subacute and chronic intussusception are quite characteristic. There is obstruction to the passage of the barium, demonstrated either by barium meal or enema. A filling defect is noted at the sight of the obstruction. In addition, a characteristic crecentic compression of the mucosal folds in this region is apparent, produced by the invagination of the bowel.

DIVERTICULITIS

Diverticulae are occasionally present in the cecum and ascending colon. In some cases there are solitary; more often there is generalized diverticulosis of the colon. Diverticulae of the cecum and ascending colon without symptoms, are sometimes found as coincidental lesions in gastro-intestinal cases. When there is an associated inflammatory process (diverticulitis), definite symptoms are usually present. To date, approximately twenty cases of primary solitary diverticulitis of the cecum have been reported in the literature.

MESENTERIC ADENITIS

Enlargement of the mesenteric glands is most often encountered in children. The condition may be secondary to various conditions. At times it is associated with acute respiratory infections. In some cases it is secondary to inflammatory ileitis. In tuberculous adenitis the process may progress and end in caseation. If healing occurs, calcification is often the end-result. Patients with mesenteric adenitis are often asymptomatic. At times there is a history of intermittent abdominal pain, and if seen during an acute attack the clinical picture simulates acute appendicitis. Golden [5] has described changes in intestinal physiology associated with calcified mesenteric adenitis. Localized spasm and delay in motility have been noted in adjacent intestinal segments.

LOCALIZED ULCERATIVE COLITIS

Ulcerative colitis may be localized and confined entirely to the proximal portion of the colon, without radiological or sigmoidoscopic evidence of generalized colitis. Amebiasis and tuberculosis are the most common specific causes of proximal colitis. In many instances the condition is apparently nonspecific. In some cases there is retrograde extension and involvement of the terminal ileum. As in generalized colitis, abdominal pain, diarrhea, and bloody stools are the most common complaints. Localized hyperplastic ulcerative colitis, involving the proximal colon, has been described in the literature. In these cases the ulceration is associated with polypoid changes in the mucosa and thickening of the wall of the colon in the involved area. A mass is often palpable clinically. The roentgen examination reveals contraction and narrowing of the cecum and ascending colon, associated with marginal irregularity. In addition, localized irritability and hypermotility are usually present, with distortion and obliteration of the normal mucosal pattern. The changes are more extensive than those seen in malignant disease, and usually are not confused with it.

COMMENT

In view of the large number of disease entities which affect the ileocecal region, it should be recognized that this portion of the gastro-intestinal tract is just as important as the stomach and duodenum, where most of the attention is focused during the routine gastro-intestinal examination. Unless detailed study is made of the ileocecal region, many lesions will pass unrecognized. Many of the hyperplastic lesions are characterized by the presence of a palpable mass in the right lower quadrant of the abdomen, which is usually of obscure origin, and often erroneously designated as carcinoma. It is only after a careful consideration of all the possibilities, coupled with a study of the clinical history and laboratory findings, that one can hope to arrive at the proper diagnosis. It is the writer's opinion that diseases of the ileocecal region offer more difficulty in roentgen diagnosis than any other topographical branch of gastro-enterology.

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REFERENCES

3. Jellen, J.: Regional Ileitis: A Review of Fifty Cases, Am. J. Roentgenol., 37:190 (Feb.), 1937.

4. Donchess, J. C., and Warren, S.: Chronic Cicatrizing Enteritis with Involvement of the Cecum and Colon, Arch. Path., 18:22 (July), 1934.

5. Golden, R.: Observations on Small Intestinal Physiology in the Presence of Calcified Mesenteric Lymph-Nodes, Am. J. Roentgenol., 35:316 (March), 1936.

DISCUSSION

CHARLES M. RICHARDS, M.D. (303 Medico-Dental Building, San Jose).—The roentgen examination of the cecum and terminal ileum is too frequently passed over in a more or less perfunctory and routine manner. When the clinical history, which should be provided for the roentgenologist, points to symptoms in this region, the examination deserves to be made with painstaking care.

Doctor Jellen has given us a very comprehensive review of the pathological conditions commonly met with in this region, and some of the less frequent ones. Even a glance at this impressive list should give the roentgenologist reason to give this region its due share of consideration, and the clinician could also study it with much profit to his patients.

A few points concerning pathology in the ileocecal region stand out as particularly important in my mind. First, we, as roentgenologists, must be impressed with the importance of taking the extra pains sometimes necessary to observe the course of the barium meal at odd intervals so as to catch the optimum time for examining the ileum in its relation to the cecum and other contiguous structures. This extra care will occasionally be rewarded by the discovery of signs of great importance.

It used to be the habit of most of us to pass over, with little or no consideration, the discovery of calcified mesenteric lymph nodes. It has been shown us by some investigators, and I have had occasion to corroborate the fact that chronically or acutely inflamed mesenteric lymph nodes may be at the bottom of a train of symptoms for which too often a fruitless appendectomy has been performed.

One other observation which has many times impressed me, and which Doctor Jellen has not stressed, is that the large, hypotonic, sagging, poorly drained cecum, so often seen, which, due to the fact that it is seldom, if ever, fully emptied, becomes chronically irritated and remains to plague the patient with a painful right lower quadrant long after the removal of an appendix is supposed to have eliminated the source of trouble.

If Doctor Jellen had done no more than compile the classified list of pathological conditions to be found in the ileocecal region, he would have done us all a real service.

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HENRY SNURE, M. D. (333 South McCadden Place, Los Angeles).—Lesions of the ileocecal region, as the author states, present a difficult problem in diagnosis even with the aid of a roentgenologic study, particularly when pain and palpable mass in the lower right quadrant are present. If the case is a chronic one, ample time for the complete roentgenologic study may be available and the correct diagnosis arrived at. Too often in hospital work the patient is admitted as an emergency with a request for a scout film of the abdomen to rule out obstruction and is in no physical condition for a prolonged roentgen study; many times a prompt exploratory operation is advisable rather than any further roentgenologic examination which may or may not provide a correct answer as to the type of pathology present.

Several years ago I made films of an infant, showing free air in the abdomen. Autopsy later showed a pin-point perforation of the cecum, the cause of which could not be determined. In this case operation was promptly done, but did not save the patient's life nor establish definitely the cause of perforation.

Doctor Jellen lists some forty types of lesions that may be present in the ileocecal region; fortunately some of these lesions occur rather infrequently, thereby reducing the percentage of possible errors in diagnosis. One point that should be emphasized is that the lymphoblastomas give no characteristic roentgenographic appearance. The diagnosis is usually made by biopsy at the time of operation.

I was glad to hear Doctor Jellen state that the diagnosis of chronic appendicitis is only occasionally offered by the roentgenologist; the various changes in the roentgenographic shadow of the appendix are of little value, location of pain point over the appendix and that shifts with the appendix is of value. He also states that the roentgenographic appearance of an appendiceal abscess is usually a smooth pressure defect on the mesial side of the cecum. However, I have occasionally found an irregular defect of the cecal outline laterally in appendiceal abscess that suggested carcinoma.

The author deserves credit for the very thorough and comprehensive manner in which he has presented the lesions of the ileocecal region.

VITAMIN-DEFICIENCY STATES: THEIR RECOGNITION AND TREATMENT*

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DISCUSSION *by William C. Boeck, M. D., Los Angeles; Albert H. Rowe, M. D., San Francisco.*

PART II†

DEFICIENCY OF P-P FACTOR (VITAMIN G, B_2, NICOTINIC ACID?)

Symptoms.

DEFICIENCY of this factor leads to the development of pellagra, the characteristic symptoms of which are three D's—diarrhea, dementia, and dermatitis—but these occur simultaneously in severe cases only. Perhaps the most characteristic feature is the dermatitis, without which the diagnosis is questionable. The cutaneous lesions consist of a dermatitis suggesting sunburn; a reddened, dirty brown skin, parchment-like, rough and scaling and affecting principally the exposed surface, especially the backs of the hands, wrists and forearms, usually in a symmetrical fashion. The face, neck, genitalia, and legs may be similarly affected. Gastro-intestinal symptoms which accompany pellagra are variable, although severe glossitis and diarrhea are the most common. The stomatitis may consist of a brick-red color of the tongue, gums and cheeks, or there may be, in addition, considerable edema, ulceration, and exudation. Diarrhea may be intractable. Anorexia, vague abdominal distress and, at times, constipation may be present. Loss of weight is common, as are also nervous symptoms such as those of peripheral neuritis or of neurasthenia, namely, exhaustion, lassitude, and insomnia. The occurrence of any of these symptoms, accompanied by dermatitis of the type mentioned, should suggest the possibility of pellagra.

Diagnosis.

The diagnosis of pellagra depends entirely on the symptoms. While diagnostic and laboratory tests have not been developed, therapeutic test with nicotinic acid is proving of considerable diagnostic value.

Mild degrees of deficiency of the P-P factor are not clear-cut and little is known about them. The occurrence of otherwise unexplained glossitis, or vague gastro-intestinal symptoms with diarrhea, with or without symptoms referable to the nervous system, have been thought by some observers to be due to early pellagra or deficiency of vitamin G, (B_2). The therapeutic effect of nicotinic acid in such cases may be of considerable diagnostic value if psychic influences can be controlled.

Treatment.

The daily requirement of the P-P factor or of nicotinic acid is unknown; nevertheless, the treatment of pellagra has become very effective, largely as a result of the work of Spies and his associates. It has been shown that the effective measures in treatment are a diet high in calories, proteins and vitamins (3,500 to 4,000 calories), supplemented by nicotinic acid in doses of 500 to 1,000 milligrams, by thiamin chlorid in doses of 20 to 50 milligrams, by powdered brewers' yeast in doses of 75 to 150 grams, or by dilute liver extract in doses of 25 to 75 cubic centimeters daily. Early in the course of the treatment the vitamin supplements may be administered parentally to those patients who, because of a sore mouth or vomiting, cannot tolerate an adequate diet. Bed rest, good nursing care and symptomatic treatment, consisting of sedatives, antiseptic solutions (such as potassium permanganate 1:5000 applied to the skin, and tincture of opium in large doses to control diarrhea), are also valuable adjuncts in treatment.

Since pellagra of the secondary type occurs not uncommonly in association with organic lesions in the gastro-intestinal tract, particularly with those which produce obstruction and with malignant disease of the stomach and colon, it is important to exclude gastro-intestinal disease before dismissing the patient.

Anemia—Abnormalities in the Gastro-Intestinal Tract.

Little is known of the etiologic factor or factors leading to the development of a macrocytic anemia, which is commonly observed in pellagra, beriberi, and other cases of deficiency of the vitamin B complex. The relation between this type of anemia and that of pernicious anemia is also not clear. How-

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